

Application No. 10/634,538

Attorney Docket No. 592/3

LISTING OF THE CLAIMS

1-7 (Cancelled)

8. (Previously presented) A rotary blood pump for use in a heart assist device, said pump having an impeller suspended in use within a pump housing by hydrodynamic thrust forces generated by relative movement of said impeller with respect to and within said pump housing; and wherein at least one of said impeller and said housing includes at least a first deformed surface lying on at least part of a first face which, in use, moves relative to respective facing surfaces on the other of said impeller and said housing thereby to form a relatively moving surface pair which generates relative hydrodynamic thrust between said impeller and said housing which includes everywhere a localized thrust component substantially and everywhere normal to said first deformed surface, wherein a drive torque of said impeller derives from magnetic interaction between permanent magnets within blades of the impeller and oscillating currents in windings encapsulated within the pump housing.

9. (Previously presented) The pump of Claim 8, wherein said pump is of an axial configuration.

10. (Previously presented) The pump of Claim 9, wherein said impeller includes tapered blade edges which form a radial hydrodynamic bearing.

11. (Previously presented) The pump of Claim 10, wherein an interior of the pump housing is constructed with a reducing radius at at least one end, and wherein said end experiences said thrust forces generated by said impeller cooperating with the housing and said thrust forces have an axial component.

12. (Previously presented) The pump of Claim 11, wherein magnetic forces provide an axial bearing.

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13. (Currently amended) The pump of Claim 2, A rotary blood pump for use in a heart assist device, said pump having an impeller suspended in use within a pump housing by hydrodynamic thrust forces generated by relative movement of said impeller with respect to and within said pump housing; and wherein at least one of said impeller and said housing includes at least a first deformed surface lying on at least part of a first face which, in use, moves relative to respective facing surfaces on the other of said impeller and said housing thereby to form a relatively moving surface pair which generates relative hydrodynamic thrust between said impeller and said housing which includes everywhere a localized thrust component substantially and everywhere normal to said first deformed surface, wherein the distance between the surfaces of said relatively moving surface pair is less than 0.2 mm.

14. (Currently amended) The pump of Claim 2, A rotary blood pump for use in a heart assist device, said pump having an impeller suspended in use within a pump housing by hydrodynamic thrust forces generated by relative movement of said impeller with respect to and within said pump housing; and wherein at least one of said impeller and said housing includes at least a first deformed surface lying on at least part of a first face which, in use, moves relative to respective facing surfaces on the other of said impeller and said housing thereby to form a relatively moving surface pair which generates relative hydrodynamic thrust between said impeller and said housing which includes everywhere a localized thrust component substantially and everywhere normal to said first deformed surface, wherein the distance between the surfaces of said relatively moving surface pair is less than 0.1 mm.

15-33 (Canceled)